REJECTION OF CLAIMS 29-34 UNDER 35 U.S.C. § 101:

Applicant's Previous Response

The rejection is respectfully traversed. The Applicant previously amended claim 29 to more clearly recite "an error correction block structure encoded on the optical disk." The Examiner's attention was previously drawn to MPEP 2106(IV)(B)(1)(a), which discusses functional descriptive material. This section states, in part "a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships . . . and is thus statutory."

Examiner's Response and Applicant's Counter-Arguments Thereto

The Examiner draws the Applicant's attention to MPEP 2106(IV)(B)(1), quoting the portion which states "non functional descriptive material includes but is not limited to...a compilation or mere arrangement of data." However, the Examiner's attention is brought to the second sentence after the quoted sentence, which goes on to clarify the scope of what is statutory and what is not statutory material. Specifically, this portion of MPEP clarifies "when functional descriptive material is recorded on some computer readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized." Thus, the MPEP indicates that a "mere" arrangement of data is non statutory, however, by recording this otherwise descriptive material on a computer-readable medium, the entire structure is statutory.

The Examiner further refers to MPEP 2106(IV)(B)(1)(b), which states that "descriptive material that cannot exhibit any functional interrelationship with the way in which computer processes are performed does not constitute a statutory process...and should be rejected under 35 U.S.C. §101." However, the preceding MPEP section (2106)(IV)(B)(1)(a)) indicates that the claimed data structures do not fall under the category of nonfunctional descriptive material, and thus the section relied upon by the Examiner does not apply in the present case. Specifically, MPEP 2106(IV)(B)(1)(a) distinguishes between data structures which are not claimed as being embodied in a computer readable medium (descriptive material per se) and a computer readable medium encoded with a data structure (functional and therefore statutory).

In summary, Applicant acknowledges that mere data is not statutory material, as set forth in the portion of the MPEP cited by the Examiner. However, it is Applicant's contention

that the cited MPEP section does not apply in the present case, insofar as the present encoding of the data in a structure meets the requirements of 35 U.S.C. §101.

The present case is analogous to *In re Lowry*, 32 USPQ 2d 1031 (CAFC 1994). In *In re Lowry*, the representative claim recited "a memory for storing data...comprising: a data structure stored in said memory, said data structure including information resident in a database used by said application program...." *In re Lowry*, 32 USPQ 2d at 1033. The issues were whether the Board of Patent Appeals and Interferences correctly held that the claims were statutory subject matter under 35 U.S.C. §101, and that the data structure features were not entitled to patentable weight under 35 U.S.C. §§ 102 and 103. *Id.* The Federal Circuit upheld the Board and held that the claims met the requirements of 35 U.S.C. §101. Furthermore, the Federal Circuit reversed the Board, holding that the recited data structure was entitled to patentable weight under 35 U.S.C. §§102 and 103. The Federal Circuit held that "contrary to the PTO's assertion, Lowry does not claim merely the information content of a memory." *Id.* at 1034. The Federal Circuit further stated "more than mere abstraction, the data structures are specific electrical or magnetic structural elements in a memory." *Id.* at 1035.

In *In re Lowry*, there was a claim to a data structure stored in memory which included information. Similarly, present claim 29 recites "an error correction block structure encoded on an optical disk." Accordingly, present claim 29 is "more than mere abstraction" insofar as there are structural features of the disk which are responsible for storing the error correction block structure. The pits of an optical disk are analogous to the "specific electrical or magnetic structural elements" of the computer disk memory of *Lowry*.

Accordingly, withdrawal of the rejection is requested.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 1-9, 15-16, 18-27 and 29-34 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kuroda et al.

Independent claim 1 recites "a burst error is corrected in an HD-DVD."

As set forth in the present specification, the present application is distinguishable from the prior art of present FIG. 1, which illustrates a 172x192 block with 10 byte PI correction and a 16 byte PO correction. As set forth in pages 2-3 of the present specification, this design is limited insofar as it cannot correct burst error in an HD-DVD, due to the smaller spot size of the

beam.

FIG. 1B of Kuroda et al. is simply the data block of present FIG. 1 (prior art), and has the same 172x192 dimension and the 10 and 16 byte PI, PO corrections. Thus, this reference cannot correct burst error in an HD-DVD.

Accordingly, withdrawal of the rejection of claim 1 is requested.

Furthermore, claim 4 depends from claim 1and recites "wherein n is 688 and m is 96." Thus, the size of the error correction block is 688x96. In contrast, Kuroda et al. teaches a 172x192 block. Still further, claim 5 depends from claim 4 and recites "e is 8" and claim 6 depends from claim 5 and recites "f is 12." These 'e' and 'f' values refer to the size in bytes of the inner and outer parities. Thus, the inner parity is 8 bytes and the outer parity is 12 bytes, whereas Kuroda et al. teaches a 10 byte PI correction and a 16 byte PO correction.

Still further, claim 7 depends from claim 1 and recites "interleaving a plurality of data groups and the plurality of PIs in the PI direction in the error correction blocks having PIs and POs." These arguments were set forth in the previous Office Action. In response to these previous arguments, the Examiner now states that the correction block 34 of Kuroda et al. is interleaved. However, it is respectfully submitted, as shown in FIG. 1B of this reference, that there is no interleaving in the PI direction. Instead, this reference teaches interleaving in the PO direction only. The ECC external codes are placed at each column, but not each row. Kuroda et al., col. 6, lines 34-46.

Accordingly, withdrawal of rejection of independent claim 1, and claims 2-9, 15-16 and 18 depending therefrom is requested. The remaining independent claims are similarly patentably distinguishable from the cited reference.

Claim 17 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kuroda et al. in view of Ozaki et al. Claim 28 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kuroda et al. in view of Hoshino et al.

These claims depend from independent claims which are distinguishable from Kuroda et al. as discussed above. It is respectfully submitted that the secondary references do not overcome the above deficiencies in Kuroda et al., and it is noted that the Examiner does not rely upon these references for this purpose.

NEW CLAIMS:

New independent claim 35 is an independent version of claim 10 (prior to the amendment herein). Insofar as the Examiner indicates that claim 10 is allowable if rewritten in independent form, claim 35, and claims 36-39 depending therefrom are patentable over the cited references.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 4-15-03

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please **AMEND** claims 1, 15, 19, 28 and 29 as follows:

1. (TWICE AMENDED) An error correction method adding an inner parity of e bytes and an outer parity of f bytes to an error correction block having a size of n bytes in a row direction x m bytes in a column direction, the error correction method comprising:

obtaining a plurality of inner parity blocks (PI blocks) by segmenting the error correction block in an inner parity (PI) direction into x segments, wherein x is an integer equal to or greater than 2;

generating e-byte PI for each of the plurality of PI blocks generated by segmenting, and adding the PIs in the PI direction; and

generating f-byte outer parity (PO) in a PO direction of the error correction block having PIs, and adding the POs in the PO direction,

wherein a burst error is corrected in an HD-DVD.

15. (TWICE AMENDED) The error correction method of claim 4, wherein n x m is a basic address unit recorded on [a disk] the HD-DVD, the method further comprising:

dividing the error correction block into a plurality of data frames, each of the data frames comprising a 4-byte ID, a 2-byte IED, an 18-byte RSV, two 2-KB user data blocks, and two 4-byte EDCs.

19. (ONCE AMENDED) An error correction method directed to an error correction block having data an inner parity direction and an outer parity direction, comprising:

segmenting the error correction block in the inner parity direction to form a plurality of

inner parity segments.

28. (ONCE AMENDED) The error correction method of claim 27, wherein the interleaving of the data comprises interleaving a quantity of the data in relation to the size of a burst error.

29. (TWICE AMENDED) [An optical] A high density digital versatile disk (HD-DVD) disk comprising:

an error correction block structure encoded on the optical disk to correct a burst error in the HD-DVD, comprising:

a plurality of inner parity blocks, each said inner parity block comprising an e-byte inner parity in an inner parity direction; and

a plurality of f-byte outer parities in an outer parity direction.